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ABSTRACT

This paper analyzes the economic knowledge of high school students based on national data from 8,000 students who took the revised "Test of Economic Literacy," a nationally normed and standardized achievement test in economics. First, the validity and reliability features of the test are presented and then the test scores are broken down across many student characteristics. Second, data from both forms of the test are combined and analyzed to identify areas of the strongest and weakest performance across major topics and economic concepts. Third, teacher survey data are reported on what economic concepts are taught in the classroom and these results are compared to student findings. Finally, implications are drawn for improving classroom instruction and teacher training in economics. Economics is a vital subject to be taught in schools because it provides an understanding of how economic systems work and aids in evaluating life's choices in our roles as workers, consumers, and citizens. (Author)

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ECONOMIC LITERACY, TEACHER INSTRUCTION, AND PREPARATION FOR THE WORLD OF WORK

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Abstract

Economic Literacy, Teacher Instruction, and Preparation for the World of Work

William B. Walstad and John C. Soper

This paper analyzes the economic knowledge of high school students based on national data from 8,000 students who took the revised Test of Economic Literacy, a nationally normed and standardized achievement test in economics. First, the validity and reliability features of the test are presented and then the test scores are broken down across many student characteristics. Second, data from both forms of the test are combined and analyzed to identify areas of the strongest and weakest performance across major topics and economic concepts. Third, teacher survey data are reported on what economic concepts are taught in the classroom and these results are compared to student findings. Finally, implications are drawn for improving classroom instruction and teacher training in economics. Economics is a vital subject to be taught in schools because it provides an understanding of how economic systems work and aids in evaluating life's choices in our roles as workers, consumers, and citizens.

Economic Literacy, Teacher Instruction, and Preparation for the World of Work

William B. Walstad and John C. Soper

High school plays an important role in the lives of students. It is at this stage in their education that students consolidate the learnings of elementary and middle schools, and prepare for more intensive study at the college level or for entry into the job market. Economics can and should be taught at these grade levels because students are capable of understanding basic economic concepts and how economic systems work. A knowledge of economics is also essential for answering economic questions and making decisions in one's life roles as consumer, worker, and voting citizen.

But knowing that economics can and should be taught in high schools is insufficient. We need more information about what is being taught, what concepts students are learning, and how to improve the teaching of this vital subject. Obtaining information to answer these questions requires careful study and analysis of national data so that any conclusions drawn will serve as a guide to the development of effective economics education among high school students. This need is all the more pressing because more states have recognized the value of teaching economics to high school students and are including the subject in the curriculum (Brennan, 1985). Teachers are also under pressure because they must now teach a subject about which they may have limited knowledge or access to quality instructional materials (Walstad and Watts, 1985).

Although researchers in economics education have investigated student economic understanding in a few studies (e.g., Saunders, 1970; Soper and Brenneke, 1981; Walstad and Soper, 1982), no studies have empirically examined economics teaching and the learning of major economic concepts at the

secondary level. Previous studies have also been criticized for being limited in scope or design (Buckles and Freeman, 1984) or they have used only local or regional student samples. In fact, despite the substantial resources devoted to the teaching of economics in high school, many questions and issues remain to be investigated (Becker, 1983).

This paper addresses the information problem by analyzing the national norming data for the revised Test of Economic Literacy (Soper and Walstad, forthcoming). A representative sample of over 8,000 students nationwide was tested in the spring of 1986 using this standardized achievement measure. Norming data are presented and then analyzed to identify levels of student knowledge by major concept area. These results are then compared to teacher survey responses on what concepts are being taught in the classroom. The paper also presents implications for teacher education and the value of economics instruction for preparing students for responsible citizenship and the world of work.

Test Development, Validity, and Reliability

In 1977 a national tast force report was issued that identified the economic understandings essential for the high school graduate. The report was developed by a national committee of prominent economists and was published as the first part of the Master Curriculum Guide: A Framework for Teaching Economics: Basic Concepts (Framework). This publication described a concept structure of the economics discipline and identified those economic concepts that should be or might be taught at the secondary level. It also served as the content validity document for the first edition of the Test of Economic Literacy (Soper, 1979).

The Framework was revised in 1984 to incorporate changes in the structure of the economics discipline and to reorganize the presentation of the basic

concepts (Saunders, et. al., 1984). The basic difference between the old and new version was the change in the fundamental and macroeconomics concept listing. There was also more emphasis given to international concepts and less emphasis on economic goals in the new version. The Framework revision invalidated the TEL as a measure of student economic understanding. The national norms were also almost a decade old and were suspect as indicators of economics achievement. So, the TEL was revised in 1985 by a national committee of economists, high school economics teachers, and test experts following standard test development procedures to establish content validity and reliability.[1]

The revised TEL consists of two 46-item forms, with 15 items common to each form for parallel form equating. Test questions are well distributed across concept areas and cognitive levels. Approximately 26-30 percent of the questions on each form cover fundamental economic, microeconomic, or macroeconomic concepts. About 15 to 17 percent of the questions also focus on international concepts. From a cognitive level perspective there are 17 percent knowledge questions, 28-30 percent comprehension questions, 22 percent application questions, 22-24 percent analysis questions, and 9 percent evaluation questions. Each form is at a high school reading level and can be completed in a standard 40 to 50 minute class period.

The overall mean scores for each sample of students for Forms A and B of the revised TEL are displayed in Table 1 and indicate that students are able on average to answer about half of the questions right. The Cronbach alphas are also reported and they indicate that the revised TEL possesses a high degree of internal consistency reliability across items in each form of the test. For comparison purposes, these statistics are presented for the first edition of the TEL. The aggregate statistics for the original and revised

editions of the TEL appear to be quite similar despite slight content differences in the old and new versions of the test. The similarity in the aggregate statistics is also supported by the results from a small-sample

Insert Table 1 about here

study that was conducted with students who took both versions of the TEL. The resulting correlations between scores on the old and new versions of the TEL were 0.85 for Form A (N = 154) and 0.86 for Form B (N = 181). These high correlations suggest that the new TEL possesses a high degree of convergent validity.

TEL Sample Characteristics and Construct Validity

Tables 2 and 3 present descriptive data for students with and without economics instruction from the 1986 norming sample. These data indicate that all students with economics score significantly higher on the new TEL than do all students without economics. The differences are +4.96 points on Form A and +5.91 points on Form B, and suggest that overall economics instruction contributes about a 27-33 percent increase in student knowledge. The sharp difference between students with and without instruction also provide initial evidence of the construct validity of the TEL.

Insert Tables 2 and 3 about here

As in the case of the first edition, the revised TEL has breakdowns by student sex, by grade level, by type of community, and by census region. In the revised TEL, new breakdowns are provided for IQ level, for race/origin, for course type, and for family income level. The IQ level was generated by

administering the Quick Word Test to a subsample of 4,270 students. The QWT correlates highly with the longer, more comprehensive IQ measures and is relatively easy to administer in a short time. In the current application, the QWT raw scores were reduced to three IQ categories (high, medium, low) based on the norming tables for grades 9-12 in the QWT Manual (Borgatta and Corsini, 1964, p. 9).[2] This breakdown produces three IQ groups of sufficient size to make reasonable comparisons possible. The results show differences in economic understanding by intelligence levels, but that exposure to economics instruction makes a significant difference at each intelligence level. These findings provide further evidence of the construct validity of the TEL: it is not simply a proxy measure of intelligence.

The race/ethnic origin breakdown was self-reported by 7,513 students (92 percent of the total sample). For course type, we used teacher-reported classification into economics, consumer economics, or social studies groups.[3] Estimates of family income were obtained from the teachers administering the test.[4] These estimates are obviously very crude and subject to significant error, especially when a teacher's estimate for a class as a whole is attributed to individuals. However, these income breakdowns yield comparative scores which appear to correspond with a priori notions about differential test performance. For example, "high income" students score higher than "middle income" students (except for the "without economics" group); and "middle income" students score higher than "low income" students. In general, the breakdowns by race/ethnic origin, by type of course, and by family income estimate all yield results in the expected direction, adding further evidence on the construct validity of the TEL. Moreover, a quick review of the data in Tables 2 and 3 reveals that students with economics outperform students without economics in the breakdown categories.[5]

Student Economic Knowledge

A major purpose of this study was to identify the areas of relative strength and weakness in student knowledge of economic concepts based on results from the two 46-item forms. To simplify the exposition, items on each form are combined and the 15 common anchor items counted only once to produce one 77-item test. This arrangement provided the benefit of more item information but it did not distort the analysis since the A and B norming samples were similar in performance. The combined item data was then analyzed from an overall perspective, across broad concept clusters, and across the 22 Framework concept categories in Table 4.

Insert Table 4 about here

The mean item difficulty level is 0.51 for students with economics, and 0.40 for students without economics. The mean difficulty level for the 4 major Framework concept clusters show that those students with economics have higher performance levels on the fundamental economic concepts (0.57) and microeconomic concepts (0.55) than they do on macroeconomic concepts (0.45) and international concepts (0.45). For students without economics, there is little change from the pre-norm levels of 0.44 for fundamental concepts, 0.46 for microeconomics, 0.37 for macroeconomic concepts, and 0.39 for international concepts. These data tend to confirm earlier speculation about the comparative weakness of student learning in the macro and international areas, compared to performance in the fundamental and micro areas (Walstad and Soper, forthcoming; Soper and Brenneke, 1981, pp. 10-12).[6]

The data in Table 4 also show which of the specific concepts within each broad concept cluster present more or less difficulty to students in the

norming sample. Comparing concept means to the overall mean of 0.51 (with economics), such concepts as economic systems, incentives and institutions, money and exchange, supply and demand, and unemployment show above average student performance. The concepts of scarcity, markets and prices, market structure, GNP, and aggregate demand were above average, while the concept areas of opportunity cost/trade-offs, productivity, income distribution, and role of government were at or near overall average performance levels. On the other hand, aggregate supply, fiscal policy, trade and comparative advantage, balance-of-payments and exchange rates, and economic growth were below average. Finally, the concepts of market failures, inflation, and monetary policy were well below average on the norming results.

One implication of this analysis is that teachers of economics courses who wish to improve the performance of their students might focus on those concepts or concept clusters above where students had the weakest level of performance. In particular, inflation, monetary policy, aggregate supply, and fiscal policy appear to be areas of relatively weak student understanding. Attention to these concepts may well significantly raise student scores in the macroeconomics cluster. Likewise, the concepts of trade and comparative advantage, balance-of-payments and exchange rates, and economic growth, which constitute the international cluster show relatively poor student performance. In the microeconomics cluster only the concept of market failures reveals comparatively poor student understanding. By focusing on classwork and providing more instruction in these areas, teachers may be able to raise overall student knowledge by significant amounts and provide a foundation for improved economic literacy in our nation.

Teacher Survey Results

As a part of the norming process, teachers administering the TEL to their students were also asked to complete survey questionnaires. These questionnaires asked teachers to report information about their professional backgrounds, the characteristics of their schools and economics courses, and their teaching practices. For the sake of brevity, we restrict our analysis to teacher responses to one item, which asked teachers to check off those economic concepts they currently teach. Table 5 provides a summary of teacher responses to this question broken down by: (A) all teachers responding (N = 188); (B) economics course teachers (N = 94); (C) social studies course teachers (N = 53); and (d) consumer economics course teachers (N = 41).

Insert Table 5 about here

Close inspection of this table reveals sharp differences in the concept coverage reported by teachers of the three types of courses (economics, consumer economics, and social studies) examined in this study. For example, in the macroeconomics cluster, 82.3 percent of economics course teachers report concept coverage, whereas only 48.3 percent of "social studies" course teachers and 59.5 percent of consumer economics course teachers report concept coverage in the macroeconomics cluster.

At the bottom of the table, we also identify the percentage of questionnaires where the respondent left the entire question blank. Only 3.2 percent of the economics teachers and 9.8 percent of the consumer economics teachers left all items blank. The reason that 37.7 percent of the social studies teachers left all items blank was that they were told not to complete the part of the survey that contained this question, if they did not teach any

economics in their courses. Slightly over 32 percent of the teachers stated that they did not teach any economics in their courses and did not complete this question; only about 5 percent of the social studies teachers who completed the entire survey did not respond to this question.

What the percentages indicate is that there are about a third of the social studies teachers who are teaching courses in government or U.S. history, who are not conscious of providing any instruction in basic economic concepts. The other two-thirds of the teachers are providing some economics instruction, but only on selected concepts. These percentages suggest that there may be severe problems with reliance on economics instruction through an "infusion" approach, where economics is taught in the context of other social studies courses rather than as a separate course. Students may receive no instruction or only sporadic exposure to economic concepts, if they happen to take social studies courses from teachers who choose not to include much economics in their classes.

Requiring a separate economics course may be the only reliable way of guaranteeing that students receive an education in economics. This decision, however, is not without controversy for there is opposition to required courses in an already crowded curriculum. In addition, even with a separate course in economics, exposure to macroeconomics or international economic concepts might be limited, and the economic education would be incomplete. These problems need to be solved by teachers, curriculum supervisors, and economics educators. To make sure that all students have an opportunity for a sound economics education, either in a separate course or through infusion, it will be necessary to "plug the holes" in the curriculum and to provide more training of social studies teachers so they are capable of teaching the subject and, understand how to integrate economics into the curriculum.

Implications

We have been called a nation of "economic illiterates" on numerous occassions by economists, educators, journalists, and public leaders (e.g. Hearst, 1984). Most people do not understand how our economic system works or their productive roles in the economy. This ignorance has contributed to poor personal decision-making on the basic economic questions which face individuals from childhood through adult years. It has also resulted in a neglect of the economic dimension in making public decisions and in inefficient allocation of public and private resources.

Part of the problem is the neglect of economics in the school curriculum. Economics is usually not taken as a separate course, where the highest levels of achievement are found, but rather it gets infused in the curriculum or it is not taught at all. The data indicate that high school students exhibit spotty knowledge of basic economic concepts, and that the weakest performance is in the macroeconomic and international concept cluster-areas that are usually the focus of much public discussion in the media and Congress. Teachers also appear to lack the prerequisite interest, skill, or training necessary to provide good coverage of economic concepts, especially social studies teachers charged with integrating the subject in a course of study.

These factors can be changed. The status of economics in secondary schools can be improved by strengthening the economics curriculum in schools, provide more administrative support and training for teachers, and by giving students more instruction in areas of low performance. These changes should contribute to increased economic literacy and better preparation for the world of work. But effective education in economics will require time and resource commitments on the part of teachers and schools. Maybe George Stigler (1970),

Nobel laureate in economics, stated it best when he made the case for economic education years ago:

> I do not despair of raising the economic literacy of the American public unless we fall prey to the superficial idea that all that is necessary is a course or two for every young American. We shall have to combine vast efforts and creative experimentation if we are to produce the first economically literate society in history (p. 84).

As the world becomes more interdependent and economics issues become more pressing, we will need to devote more attention to the economic literacy problem as we prepare students for careers and citizenship.

Footnotes

[1]Members of the test development committee included: William Carlson (Guilford High School, Illinois); John Morton (Homewood-Flossmoor High School, Illinois); Michael Watts (Purdue University); and, the authors. Members of the National Advisory committee included: G. L. Bach (Stanford University); William Baumol (Princeton and New York Universities); William Becker (Indiana University); Rendigs Fels (Vanderbilt University); Kalman Goldberg (Bradley University); W. Lee Hansen (University of Wisconsin); Robert Highsmith (Joint Council on Economic Education); Karen Horn (Cleveland Federal Reserve bank); Herbert Neil, Jr. (Financial and Economic Strategies Corporation); and, James Tobin (Yale University). For a description of the test development work, see Walstad and Soper, forthcoming.

[2]The QWT score can range from 1 to 100. A QWT score of 53 or less was classified as "low." A score of 54 to 68 was classified as "middle." A QWT score of 69 or above was classified as a "high" IQ score.

[3]The course titles that were given for "economics" courses were: economics; free enterprise; applied economics; economic history; economics/government; and comparative economic systems. Course titles used for the "consumer economics" designation were: consumer economics; marketing/sales management; business economics; home economics; agricultural economics; business math; and law. For the "social studies" designation, course titles were: U.S. history; world history; government; social studies; geography; psychology; contemporary America; local history; and social problems.

[4]Family income estimates were based upon teacher responses to the following question: "Is the household income level for students in this lass predominantly: ____ high income ____ middle income ____ low income."

[5]Tables 2 and 3 present "with economics" and "without economics" breakdowns by single characteristics. To control for confounding caused by other factors requires the use of multiple regression procedures. This statistical approach will be employed in another paper.

[6]It may be tempting to make comparisons of the difference between students with and without economics. We caution against this practice because the samples are different and there is no way to control for background differences without the use of more sophisticated statistical procedures. This subject will be studied in another paper.

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Table 1

Comparative Aggregate Statistics for the TEL, First and Revised Editions

	First Edition[1]		Revised Edition[2]	
	Form A	Form B	Form A	Form B
Number of students	4,192	4,468	4,235	3,970
Cronbach alpha	.88	.87	.87	.88
Std. error of measurement	3.02	3.01	3.06	3.04
Per cent with economics	55.2	59.1	74.5	69.7
Overall mean	21.59	22.89	22.06	22.18
(std. dev.)	(8.52)	(8.43)	(8.33)	(8.64)
Mean with economics	23.99	24.47	23.33	23.92
(std. dev.)	(9.28)	(8.86)	(8.45)	(8.85)
Sub-N's	2,242	2,528	3,153	2,765
Mean without economics	18.91	20.81	18.37	18.01
(std. dev.)	(6.53)	(7.15)	(6.71)	(6.64)
Sub-N's	1,817	1,750	1,082	1,205

[1]Data from the spring 1977 norming of the TEL (Soper, 1979), Tables 5, 13, and 14, pps. 11 and 16.

[2]Data from the spring 1986 post-norming of the TEL, rev. ed. (Soper and Walstad, forthcoming).

Table 2

Descriptive Statistics for Various Groups within the Norming Sample TEL Form A

	With Economics			Without Economics		
	Mean	Std. Dev.	Number	Mean	Std. Dev.	Number
By student sex						
Females	22.68	7.95	1,412	18.12	6.14	475
Males	23.97	8.83	1,516	18.84	7.19	453
By grade level						
Grade 11	21.26	7.99	633	17.20	5.91	408
Grade 12	24.04	8.47	2,168	19.78	7.14	463
By IQ level						
Low	17.78	7.01	511	15.52	4.52	250
Middle	24.35	7.24	518	19.13	6.03	285
High	31.04	7.31	446	24.08	7.35	148
By Race/Origin						
White	24.55	8.36	2,297	18.69	6.79	811
Black	19.72	7.60	378	14.91	4.44	104
Hispanic	21.37	7.88	54	16.53	7.15	17
Other	22.76	8.54	136	18.20	6.71	45
By type of community						
Rural	19.41	7.76	438	17.66	6.20	280
Suburban	26.01	8.14	1,248	18.29	6.75	491
Urban	23.81	8.56	929	21.17	6.67	93
By region						
Northeast	24.58	8.04	513	22.37	7.24	146
South	20.75	7.89	622	17.36	5.83	319
North Central	23.32	8.66	1,529	17.66	6.83	533
West	25.32	8.08	489	19.79	5.34	84
By course type						
Economics	23.57	8.46	2,585	NA	NA	NA
Consumer Economics	21.70	7.99	309	18.70	7.14	263
Social Studies	22.85	8.69	259	18.27	6.57	819
By income level						
Low	20.64	7.00	594	18.37	5.88	99
Middle	25.30	8.54	1,715	17.39	6.14	675
High	24.31	9.49	309	24.61	6.66	118
All students	23.33	8.45	3,153	18.37	6.71	1,082

Table 3

Descriptive Statistics for Various Groups within the Norming Sample TEL Form B

	With Economics			Without Economics		
	Mean	Std. Dev.	Number	Mean	Std. Dev.	Number
By student sex						
Females	23.11	8.26	1,376	17.78	6.07	614
Males	24.78	9.33	1,371	18.33	7.19	579
By grade						
Grade 11	24.11	8.81	463	18.55	6.66	513
Grade 12	24.08	8.84	2,195	17.85	6.89	371
By IQ level						
Low	17.92	7.07	458	15.04	4.85	289
Middle	23.65	7.50	511	19.42	6.10	260
High	30.21	7.81	439	24.58	7.84	155
By Race/Origin						
White	24.73	8.86	2,103	18.34	6.60	969
Black	19.14	7.38	251	14.91	4.20	94
Hispanic	19.77	6.89	73	17.41	7.70	17
Other	22.51	8.54	109	19.75	7.52	55
By type of community						
Rural	22.77	9.54	511	18.17	6.57	371
Suburban	24.58	8.39	1,287	19.03	7.41	308
Urban	23.51	8.78	727	17.81	6.47	295
By region						
Northeast	22.90	8.24	641	18.01	6.74	181
South	23.62	8.95	757	17.76	6.09	459
North Central	26.30	9.11	957	17.23	6.43	368
West	20.55	7.38	410	19.40	7.87	197
By course type						
Economics	25.55	8.87	1,930	NA	NA	NA
Consumer Economics	18.07	6.96	405	17.75	6.76	325
Social Studies	22.14	7.61	430	18.11	6.60	880
By income level						
Low	20.16	7.84	284	17.85	6.56	313
Middle	23.86	8.86	1,865	18.61	6.93	615
High	26.97	7.81	376	17.93	7.16	46
All students	23.92	8.85	2,765	18.01	6.64	1,205

Table 4

Mean Item Difficulty (Post-Norms)
TEL, Rev. Ed., Forms A and B

NUM	CAT	CONCEPT N =	WITH (5,918)	W/O (2,287)	TOTAL (8,205)
77	All	Overall	0.51	0.40	0.48
20	A	Fundamental	0.57	0.44	0.53
22	B	Microeconomics	0.55	0.42	0.51
23	C	Macroeconomics	0.45	0.34	0.42
12	D	International	0.45	0.36	0.43
3	A01	Scarcity	0.54	0.32	0.48
5	A02	Opp. cost/trade-offs	0.51	0.40	0.48
3	A03	Productivity	0.51	0.40	0.48
1	A04	Economic systems	0.75	0.57	0.70
5	A05	Incentives & instit.	0.61	0.49	0.58
3	A06	Money & exchange	0.65	0.52	0.62
2	B07	Markets & prices	0.55	0.41	0.51
7	B08	Supply & demand	0.61	0.49	0.57
4	B09	Market structure	0.59	0.48	0.56
3	B10	Income distribution	0.51	0.41	0.48
3	B11	Market failures	0.39	0.33	0.38
3	B12	Role of government	0.52	0.38	0.48
2	C13	Gross national prod.	0.56	0.42	0.52
2	C14	Aggregate supply	0.44	0.31	0.40
3	C15	Aggregate demand	0.53	0.42	0.49
2	C16	Unemployment	0.63	0.51	0.60
4	C17	Inflation	0.34	0.25	0.32
5	C18	Monetary policy	0.36	0.28	0.34
5	C19	Fiscal policy	0.46	0.35	0.43
5	D20	Trade & comp. adv.	0.48	0.36	0.45
4	D21	BOP & exchg. rates	0.44	0.38	0.42
3	D22	Economic growth	0.43	0.34	0.40

NUM = number of items; CAT = concept category; W/O = without economics

SOURCE: Spring 1986 post-norming of the TEL, rev. ed. (Soper and Walstad, forthcoming).

Table 5

Concepts Currently Teaching
Teacher Survey Responses on TEL Norming
(In Percentages)

CONCEPT CATEGORY		(A)	(B)	(C)	(D)
	N =	188	94	53	41
A	Fundamental	60.1	79.4	36.3	56.1
B	Microeconomics	72.8	77.2	39.2	59.6
C	Macroeconomics	65.6	82.3	48.3	59.5
D	International	35.7	54.8	24.6	15.9
A01	Scarcity	70.8	90.4	49.1	73.2
A02	Opportunity cost/trade-offs	63.2	85.7	33.1	68.3
A03	Productivity	61.3	80.9	35.8	56.1
A04	Economic systems	69.3	80.9	49.1	65.9
A05	Incentives & institutions	48.9	71.3	24.5	36.6
A06	Money & exchange	46.8	67.0	26.4	36.6
B07	Markets & prices	63.7	87.2	35.8	78.0
B08	Supply & demand	78.5	95.7	50.9	85.4
B09	Market structure	68.7	83.0	49.1	63.4
B10	Income distribution	48.2	60.6	32.1	41.5
B11	Market failures	29.6	47.4	10.4	23.2
B12	Role of government	75.2	89.4	56.6	65.9
C13	Gross national product	67.3	85.1	45.3	58.5
C14	Aggregate supply *	--	--	--	--
C15	Aggregate demand *	--	--	--	--
C16	Unemployment	65.1	75.5	45.3	75.6
C17	Inflation	75.7	88.3	58.5	78.0
C18	Monetary policy	59.9	80.9	35.3	48.8
C19	Fiscal policy	59.9	81.9	47.2	36.6
D20	Trade & comparative advantage	42.4	64.9	32.1	19.6
D21	Bal. of payments & exchg. rates	28.9	44.7	17.0	12.2
D22	Economic growth *	--	--	--	--
Left All Blank		13.4	3.2	37.7	9.8

*Concept not included on survey

KEY:
Column A = Total posttesting teachers (N = 188)
Column B = Economics course teachers (N = 94)
Column C = Social studies course teachers (N = 53)
Column D = Consumer economics course teachers (N = 41)

SOURCE: Spring 1986 post-norming of the TEL, rev. ed. (Soper and Walstad, forthcoming).